

EXHIBIT A

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Robert Allen Smith et al.

Serial No.: 10/715,337

Filed: November 17, 2003

For: HYDRATABLE FORM OF KERATIN  
FOR USE AS A SOIL AMENDMENT

Group Art Unit: 1651

Examiner: Deborah K. Ware

Atty. Dkt. No.: KER020/4-1DIVUS

Confirmation No. 2390

**DECLARATION OF GEORGE L. GENTRY**

I GEORGE L. GENTRY, HEREBY DECLARE AS FOLLOWS:

1. I am employed as Director of Operations for Keraplast Technologies, Ltd., the assignee of US Application Serial No. 10/715,337 ('337). I am an expert in the fields of horticulture, landscape design and the many materials used in the industry.

2. My expertise is evidenced by the fact that I have a BS degree in Horticultural Sciences. I am a Master Certified Nursery Professional and have owned and operated a large retail nursery / greenhouse plant growing facility. I have also provided professional landscape services and maintenance for 33 years.

3. It is my understanding that the Patent Examiner of the '337 application has rejected some claims as being anticipated by CN 1137030. Although I am not a patent attorney, my understanding is that the Examiner has stated that the claims of the '337 are drawn to keratin and metal ions and that the Chinese reference describes a soil amendment with keratin and metal ions, thus anticipating the claims.

4. Although I have only reviewed the English abstract of the Chinese reference, the abstract describes only hydrolysed keratin, or keratin hydrolyzate. Keratin hydrolyzate is not identical to, or equivalent to the hydratable keratin or keratin hydrogel that is claimed in the '337 application.

5. I have done a side by side comparison of a keratin hydrolysate and the hydratable keratin hydrogel material of the '337 claims in order to demonstrate that they are not the same composition and to show the superior moisture retention properties of the hydratable keratin.

6. I obtained a hydratable keratin composition prepared as described in the '337 application and also obtained a commercially available keratin hydrolysate as described in the Chinese reference for comparison. The keratin hydrolysate is not available as a dry powder so an aqueous suspension was used. The suspension had the consistency of a thick syrup.

7. The first test was performed in quadruplicate as follows:

a. Identical 16 oz. styrofoam cups were used for all samples. The cups were perforated in the bottom with four small holes each and placed in 9 oz. clear plastic drainage cups so that fluid poured into the styrofoam cups would drain through the holes in the bottom and be collected in the plastic cups. The holes were small enough to retain the wet sand while the fluid passed through the holes. Toothpicks were placed on the sides of the styrofoam cups to prevent an air tight seal and prevent air pressure from inhibiting natural drainage into the drainage cups.

b. The dry media was made as follows:

4 control sample cups contained 7.4 ounces of dry weight sand;

4 keratin hydrolysate sample cups contained 7.4 ounces of dry weight sand;

4 hydratable keratin hydrogel sample cups contained 3.9 oz. dry weight sand and 1.1 oz. (3/8 cup) of keratin material to obtain the same dry media volume in all samples.

c. 5 ounces of liquid was poured through each sample cup as follows and the drainage fluid was measured after 10 minutes:

5 ounces of reverse osmosis (R/O) filtered water was poured through the control cups and about 4.9 ounces was collected in the drainage cups after 10 minutes.

3.5 ounces of the keratin hydrolysate solution combined with 1.5 ounces of R/O water was poured through the sample cups and about 4.5 ounces of fluid was collected in the drainage cups.

5 ounces of R/O filtered water was poured through the hydratable keratin hydrogel material and all measurable quantities of water were absorbed.

8. Photographs of the 2 starting materials, the drainage cups showing the collection in the control, hydratable keratin, and hydrolyzed keratin samples are attached.

9. The average results of 4 trials is summarized in the following table.

	Dry material wt.)	Fluid added	Fluid collected
Keratin hydrogel	3.9 oz sand 1.1 oz. keratin	5 fl oz R/O water	0
Keratin hydrolysate	5 oz sand	3.9 fl oz hydrolysate 1.1 fl oz R/O water	4.5 oz
control	5 oz sand	5 fl oz R/O water	4.9 oz

10. Because I was unable to determine the concentration of polypeptide in the hydrolysate solution, one more experiment was performed to demonstrate the difference in the two compositions.

a. For the keratin hydrolysate:

5 fluid ounces of hydrolyzed keratin solution were poured into 7.4 dry ounces of dry weight sand. After 90 seconds fluid had reached the bottom of the sample cup and an initial flow was seen. After 19-20 minutes, all flow had stopped and 1.9 liquid ounces was captured in drain cup.

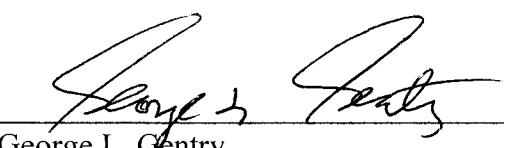
b. For the hydratable keratin hydrogel material:

3.9 oz sand was mixed with 1.1 oz. hydratable keratin and 5 fluid ounces of R\O water was added in the sample cup. Additional water was added 1 ounce at a time for 2 times and then  $\frac{1}{2}$  ounce measures of water were added until an initial water flow was observed after the addition of 8 ounces total. After 20 minutes an amount of water too small to measure had collected in the drainage cup and the dry media had swollen to extend  $\frac{3}{4}$ " above the level of the top of the cup.

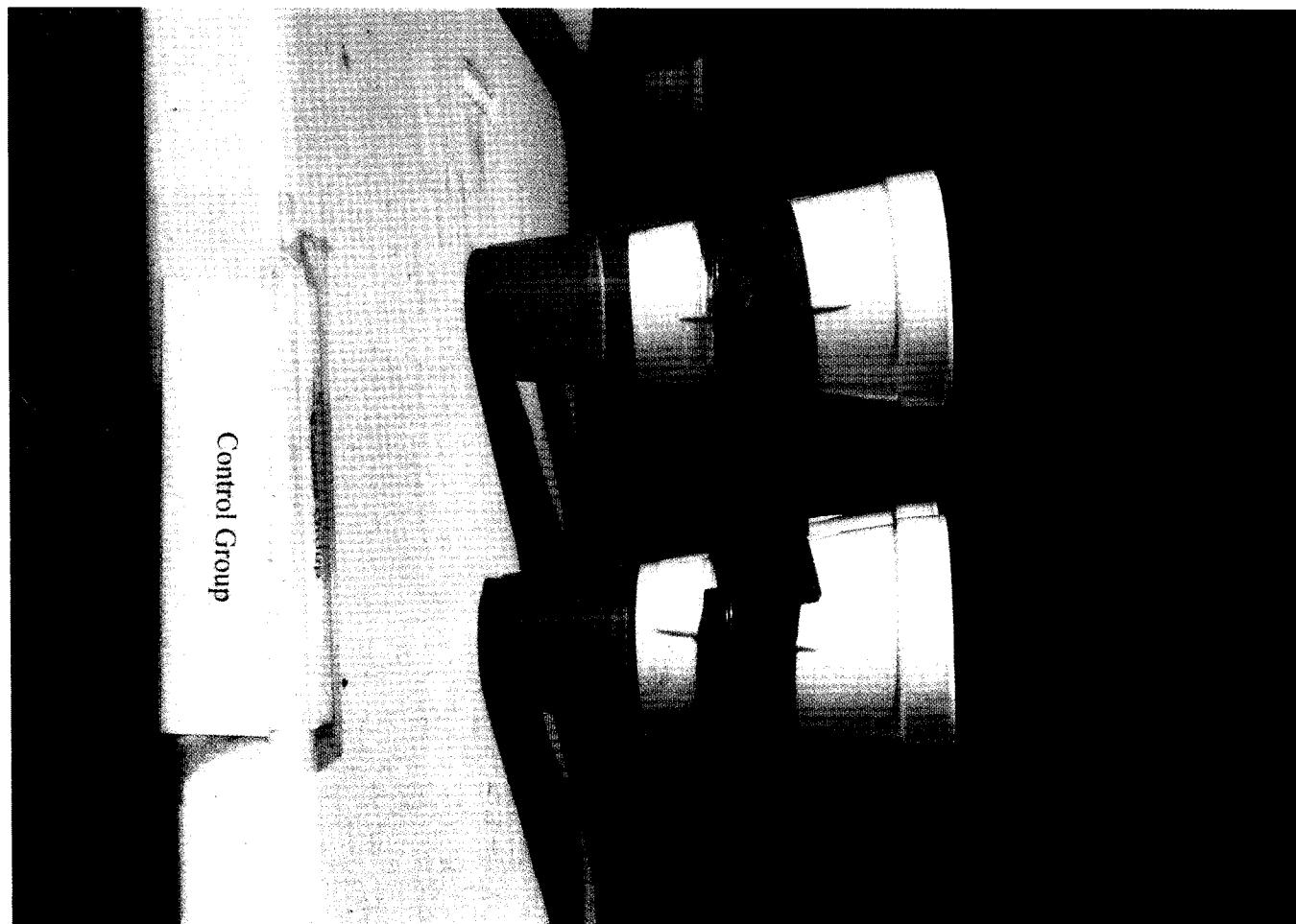
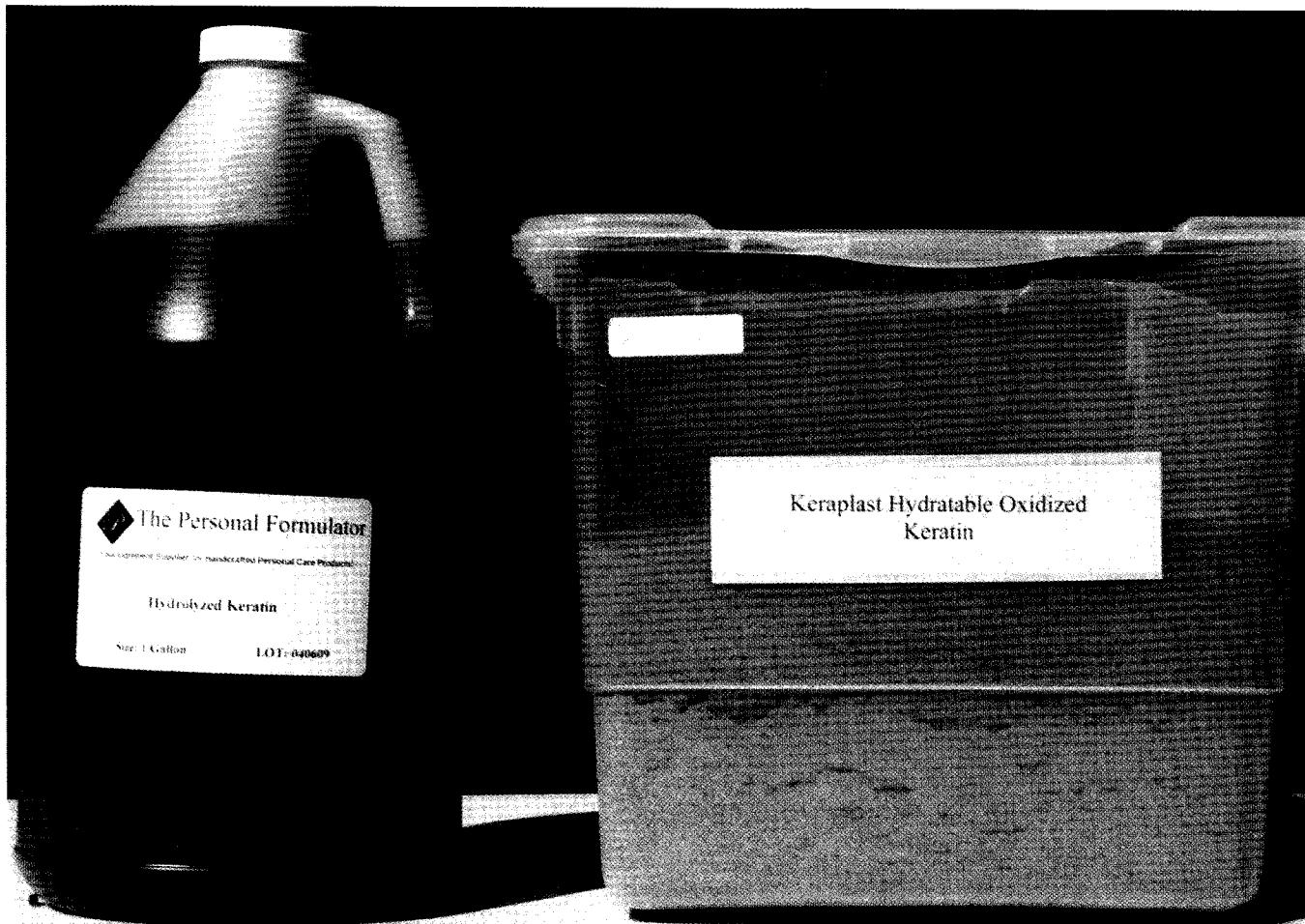
11. Based on this experiment, the hydratable keratin had absorbed approximately 8 times its own weight in water and had not reached saturation. In addition the material has swollen to the point that it could not be contained in the sample cup. Based on these observations, it is apparent to me as it would be to anyone of average skill that the hydratable

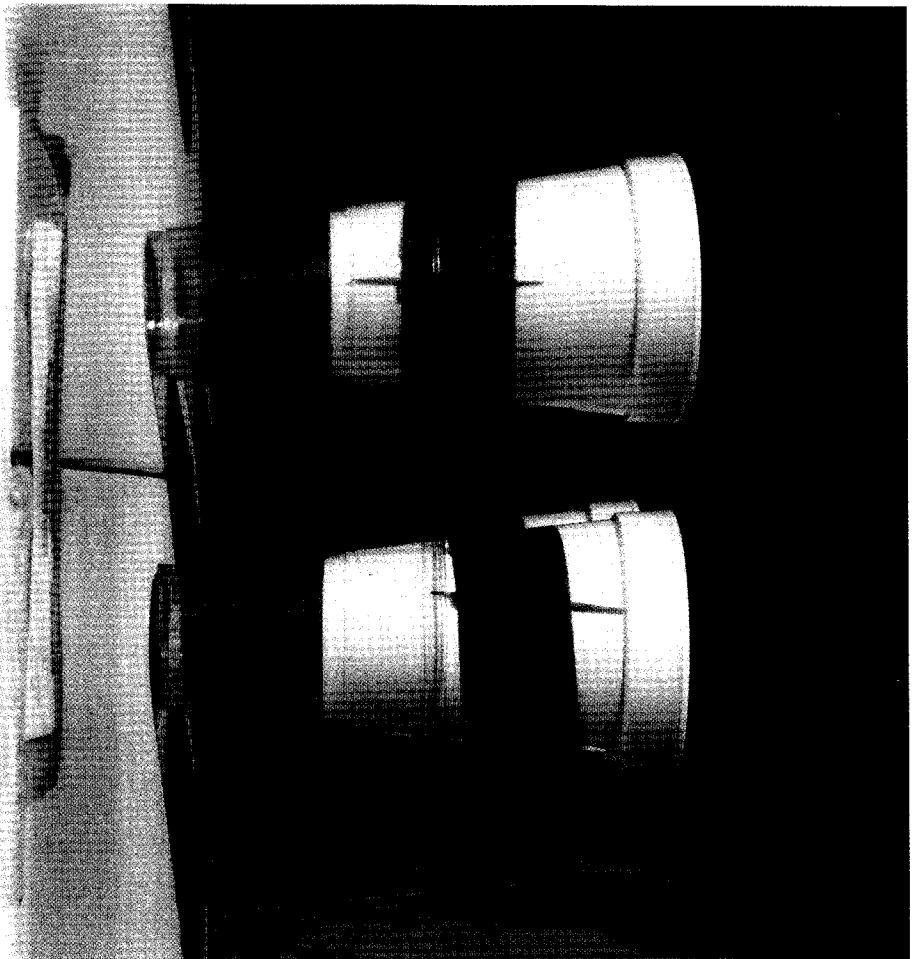
materials are quite different from the hydrolyzate and the CN 1137030 disclosure cannot anticipate the claims of this application.

12. All statements made in this Declaration of my own knowledge are true and all statements made in this Declaration on information and belief are believed to be true, and these statements are made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both under 18 U.S.C. §1001 and may jeopardize the validity of this application or any patent issuing thereon.

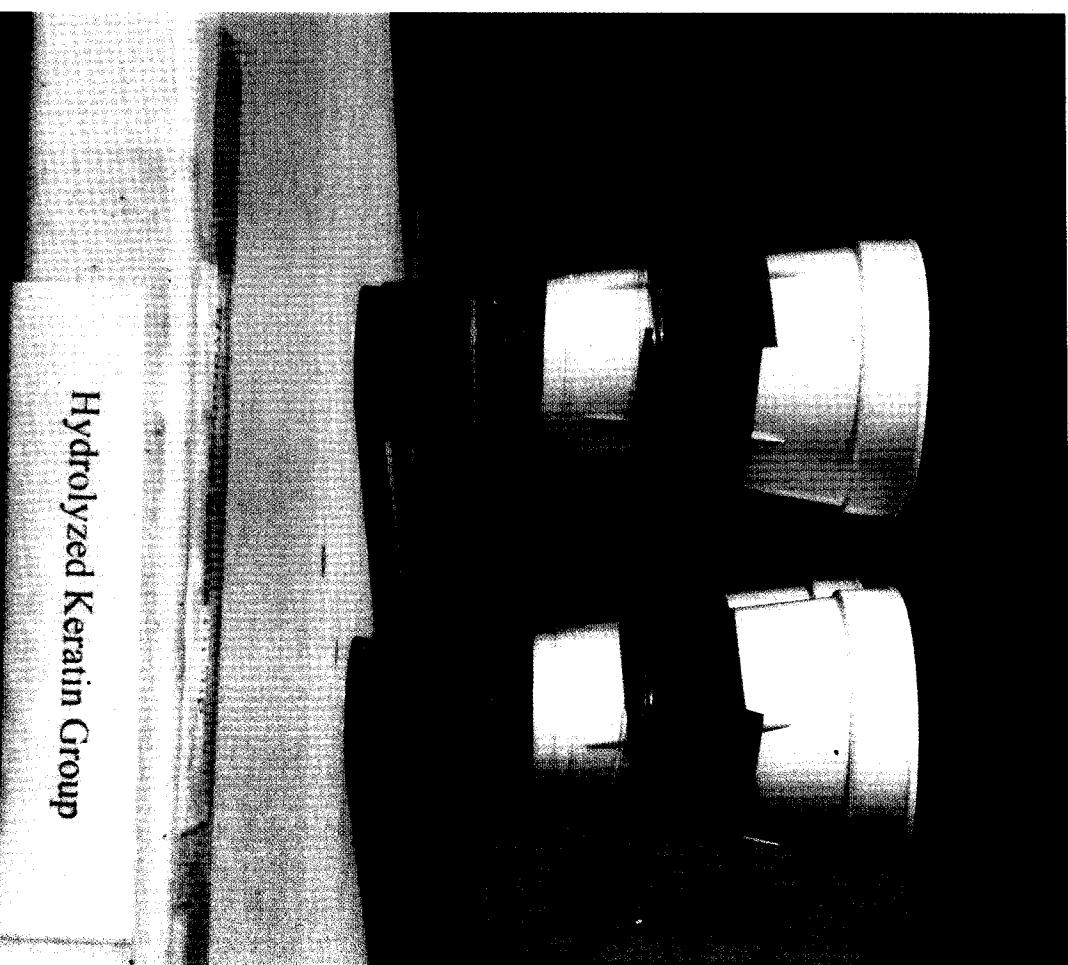
Signature:   
George L. Gentry

Date June 10<sup>th</sup> 2005





**Keraplast Hydratable Oxidized  
Keratin Group**



**Hydrolyzed Keratin Group**